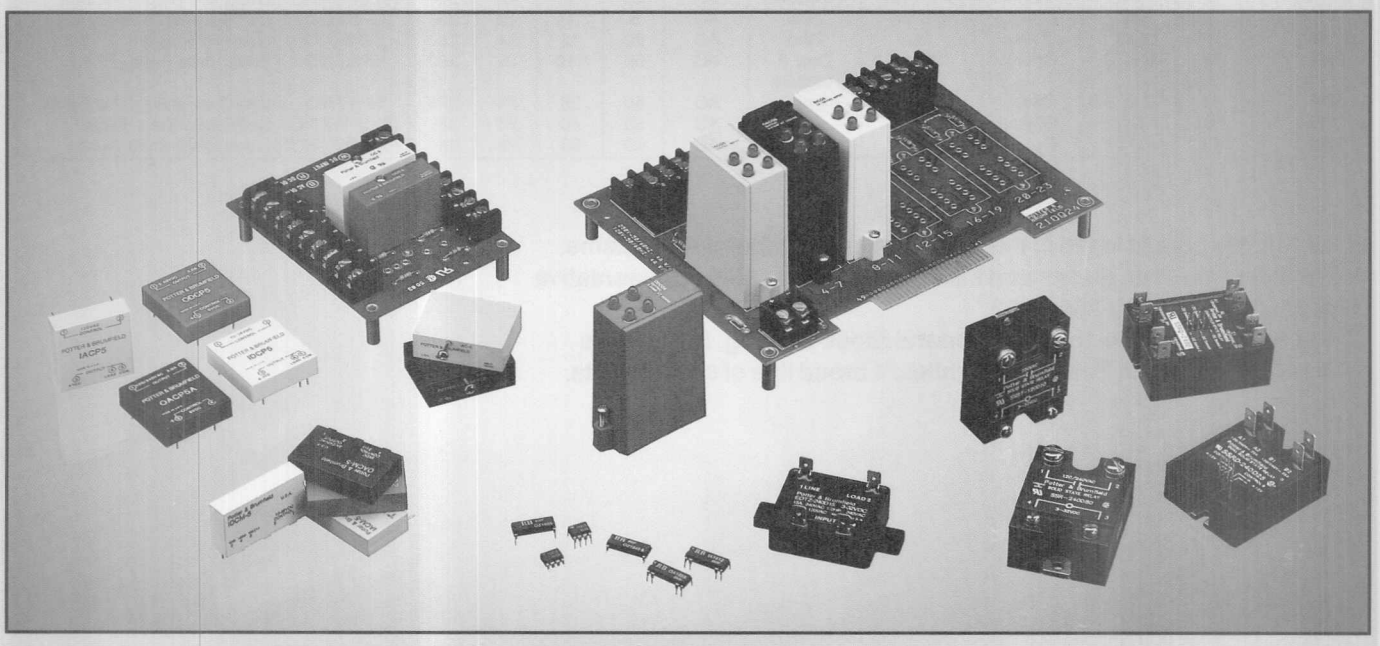
Stock Solid State Relays and Input/Output Modules



Potter & Brumfield A Siemens Company

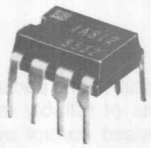
SELECTOR GUIDE

I/O Modules and Solid State Relays

Series	Page	Input Type	Coupling Type	Type (No.) of Terminals	Output Characteristics						Number/ Type of Pole	Distinguishing Features
					Switching Type	Output Type	Current		Voltage			
							Min. mA	Max. A	Min. V	Max. V		
IA8	3	AC & DC	Optical	PC (8)	Random	DC	>0	0.2	>0	60	SPST-NO	DIP, AC/DC Input Module
IA16	4	AC & DC	Optical	PC (7)	Random	DC	>0	0.2	>0	30	SPST-NO	DIP, AC/DC Input Module
OA16	4	DC	Optical	PC (7)	Zero	AC	5	1	12	280	SPST-NO	DIP, AC Output Module
IACP	5	AC & DC	Optical	PC (5)	Random	DC	>0	0.1	>0	30	SPST-NO	Flat Pack, AC Input Module
IDCP	5	DC	Optical	PC (5)	Random	DC	>0	0.1	>0	30	SPST-NO	Flat Pack, DC Input Module
OACP	5	DC	Optical	PC (4)	Zero	AC	20	3	12	280	SPST-NO	Flat Pack, AC Output Module
ODCP	5	DC	Optical	PC (4)	Random	DC	20	3	5	60	SPST-NO	Flat Pack, DC Output Module
ODCP-A	5	DC	Optical	PC (4)	Random	DC	20	1	10	200	SPST-NO	Flat Pack, DC Output Module
IACM	6	AC & DC	Optical	PC (5)	Random	DC	>0	0.1	>0	30	SPST-NO	Slim Line, AC Input Module
IDCM	6	DC	Optical	PC (5)	Random	DC	>0	0.1	>0	30	SPST-NO	Slim Line, DC Input Module
OACM	6	DC	Optical	PC (4)	Zero	AC	20	3	12	280	SPST-NO	Slim Line, AC Output Module
ODCM	6	DC	Optical	PC (4)	Random	DC	20	3	5	60	SPST-NO	Slim Line, DC Output Module
IAC	8	AC & DC	Optical	PC (5)	Random	DC	0.1	0.1	0.4	30	SPST-NO	AC Input Module
IDC	8	DC	Optical	PC (5)	Random	DC	0.1	0.1	0.4	30	SPST-NO	DC Input Module
OAC	8	DC	Optical	PC (4)	Zero	AC	20	3	24	280	SPST-NO	AC Output Module
ODC	8	DC	Optical	PC (4)	Random	DC	20	3	5	60	SPST-NO	DC Output Module
ODC-A	8	DC	Optical	PC (4)	Random	DC	20	1	10	200	SPST-NO	DC Output Module
IACQ	11	AC & DC	Optical	PC (14)	Random	DC	0.1	0.1	0.4	30	(4) SPST-NO	Quad AC Input Module
IDCQ	11	DC	Optical	PC (14)	Random	DC	0.1	0.1	0.4	30	(4) SPST-NO	Quad DC Input Module
OACQ	11	DC	Optical	PC (12)	Zero	AC	20	3	24	280	(4) SPST-NO	Quad AC Output Module
ODCQ	11	DC	Optical	PC (12)	Random	DC	20	3	5	60	(4) SPST-NO	Quad DC Output Module
ODCQ-A	11	DC	Optical	PC (12)	Random	DC	20	1	10	200	(4) SPST-NO	Quad DC Output Module
OZ16	14	DC	Optical	PC (4)	Zero	AC	5	1	12	280	SPST-NO	DIP Solid State Relay
EOTZ	15	DC	Optical	QC	Zero	AC	20	15	24	280	SPST-NO	Low Profile SSR
SSR	16	AC & DC	Optical	Screw	Zero & Random	AC	50	110	24	280	SPST-NO	Solid State Relay
SSRT	17	AC & DC	Optical	Screw	Zero	AC	50	25	24	280	SPST-NO	Low Cost Solid State Relay
SSRD	18	DC	Optical	QC	Zero	AC	50	40	24	280	(2) SPST-NO	Dual Solid State Relay
SSRQ	19	DC	Optical	QC	Zero	AC	50	20	24	280	(4) SPST-NO	Quad Solid State Relay

- All of the products listed in this brochure are distributor stock items.
- For the name of an authorized P&B distributor or sales representative near you, call 1-800-255-2550.
- Ask for a free copy of the P&B General Stock Catalog. It lists more than 2,400 items in Potter & Brumfield's broad line of components.

Miniature, auto-insertable IA8 series I/O modules are encapsulated in an 8 pin IC package.



IA8 SERIES

Potter & Brumfield IA8 series input/output (I/O) modules are 8 pin, dual in-line package (DIP) units which require half the space of 16 pin models. These modules provide a means of reliably interfacing microprocessor- or computer-based control systems with external control devices and telecommunications equipment.

The IA8 can act as an AC/DC input module or a DC output module. The output does require logic voltage to operate.

IA8 series I/O modules feature a hybrid thick film design and terminals spaced on a .100" (2.54 mm) grid suitable for automatic insertion on printed circuit boards.

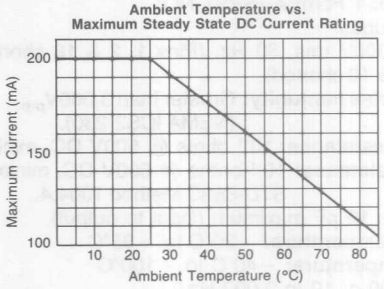
ENGINEERING DATA

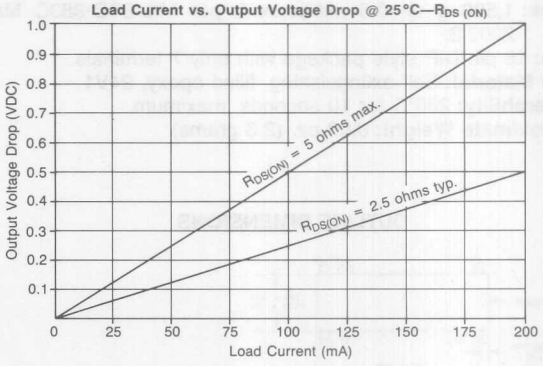
Switch Form: 1 Form A (SPST-NO).
Duty: Continuous.
Isolation: 2,500V rms, 60 Hz. (Pins 1, 2, 3 & 4 shorted; pins 5, 6, 7 & 8 shorted).
Insulation Resistance: 10^{11} ohms @ 500V DC, minimum.
Moisture Resistance: 10^{11} ohms @ 500V DC, minimum, per MIL-STD-883C Method 1004.4.
Capacitance: 10 pF maximum (input to output).
Operating Temperature: −30°C to +85°C
Storage Temperature: −40°C to +100°C
Vibration: 100 g, 10 to 2,000 Hz.
Shock: 1,500 g @ 0.5 millisecond, per MIL-STD-883C Method 2002.3.
Case: 8 pin DIP style package.
Case Material: Self extinguishing, filled epoxy, 94V1
Solderability: 260°C for 10 seconds, maximum.
Approximate Weight: 0.02 oz. (0.5 gram).

FEATURES

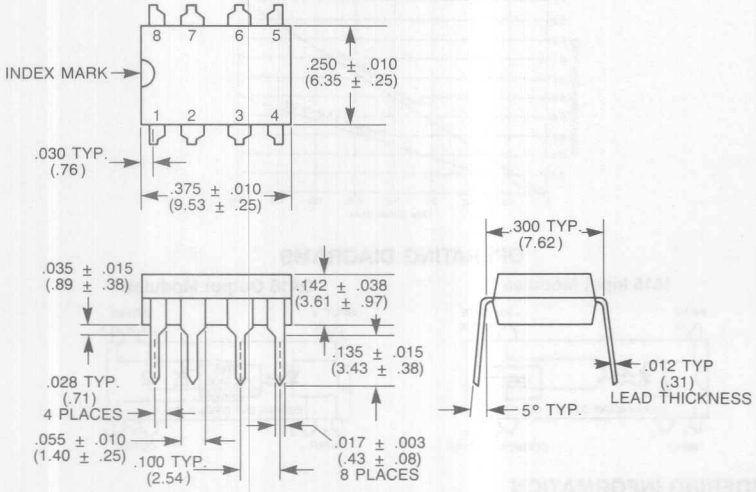
- **Mini-DIP Package**
- **All Solid State AC or DC Input**
- **High Immunity to False Operation**
- **2,500V rms Optical Isolation (Exceeds FCC Part 68 Surge Test)**
- **200 mA Output Current Rating**
- **60V DC Output Voltage Rating**
- **4 to 20V DC Logic Voltage Operation**
- **UL File E29244**
- **CSA File LR15734**

ELECTRICAL CHARACTERISTICS



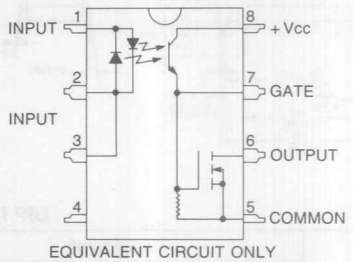


OUTLINE DIMENSIONS



NOTE: Terminal numbers are for reference only. They do not appear on the module.

OPERATING DIAGRAM



EQUIVALENT CIRCUIT ONLY

DIP I/O MODULE ORDERING INFORMATION

Part Number	Input					Output @ 25°C						Module Function
	Type	Current		Voltage		Type	Current		Voltage			
		Min. mA	Max. mA	Min. V	Max. V		Min. mA	Max. A	Min. V	Max. V	Max. V peak	
*•IA8-11	AC or DC	5	30	—	—	DC	>0	0.2	>0	60	—	AC/DC Input
*•IA8-12	AC or DC	2	30	—	—	DC	>0	0.2	>0	60	—	AC/DC Input

• Denotes UL
* Denotes CSA

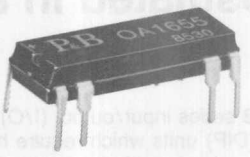
DIP, 16 pin, IC-type I/O modules from P&B are space saving, cost effective interfaces.

IA16/OA16 SERIES

Potter & Brumfield 16 pin, dual in-line package (DIP) input/output (I/O) modules provide a means of reliably interfacing between microprocessor- or computer-based control systems and external input devices and loads.

These solid state I/O modules are offered in two photo-isolated versions: AC output (OA16) and AC/DC input (IA16). Input modules provide an output which is active low. Output modules can be controlled from active low or active high logic. The OA16 utilizes zero crossover switching to virtually eliminate transients and generated EMI noise.

P&B DIP I/O modules are ideal for use in such applications as programmable controllers, robotics, elevator controls, business machines, computer process controls, machine tool controls, energy management, automatic test equipment and telecommunications.



FEATURES

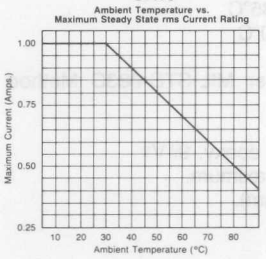
- **Hybrid Thick Film Design**
- **Auto Insertable DIP Package**
- **TTL Compatible**
- **High Degree of Isolation and Immunity to False Operation**
- **Output Modules Rated to 1A Switching**
- **Input Modules Accept AC or DC Input Voltage**
- **Meets VDE Spacing and Voltage Requirements**
- **Optical Isolation**
- **UL File 29244**
  IA16-Industrial Control Equipment
  OA16-Industrial Control Equipment, Intrinsically Safe Equipment and Systems for use in Hazardous Locations
- **CSA File LR15734 (IA16 & OA16)**
- **TUV File E77060 (OA16) to DIN VDE 0883/6.80**

ENGINEERING DATA

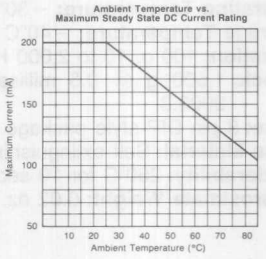
Switch Form: 1 Form A (SPST-NO).
Duty: Continuous.
Isolation: 4,000V rms, 60 Hz. (Pins 1, 2 & 16 shorted; pins 7, 8, 9 & 10 shorted).
Transient Noise Immunity: Greater than 3,000V_{p-p} (NEMA ICS2-230).
Insulation Resistance: 10^{11} ohms @ 500V DC, minimum.
Moisture Resistance: 10^{11} ohms @ 500V DC, minimum, per MIL-STD-883C Method 1004.4.
Capacitance: 10 pF maximum (input to output).
Operating Temperature: −30°C to +85°C
Storage Temperature: −40°C to +100°C
Vibration: 100 g, 10 to 2,000 Hz.
Shock: 1,500 g @ 0.5 millisecond, per MIL-STD-883C Method 2002.3.
Case: 16 pin DIP style package with only 7 terminals.
Case Material: Self extinguishing, filled epoxy, 94V1
Solderability: 260°C for 10 seconds, maximum.
Approximate Weight: 0.08 oz. (2.3 grams).

ELECTRICAL CHARACTERISTICS

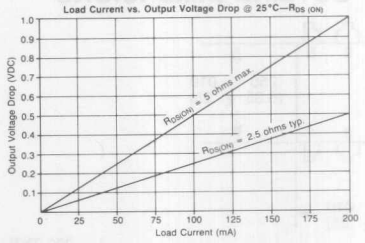
OA16



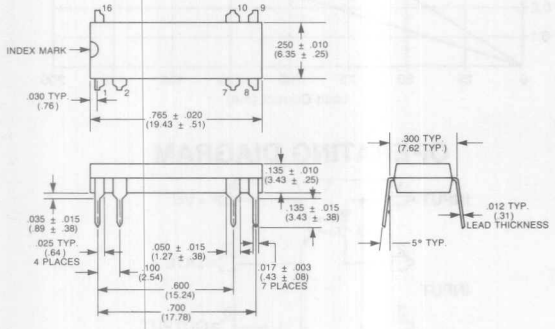
IA16



IA16

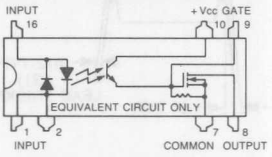


OUTLINE DIMENSIONS

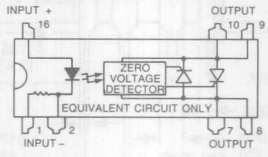


OPERATING DIAGRAMS

IA16 Input Modules



OA16 Output Modules



DIP I/O MODULE ORDERING INFORMATION

Part Number	Input				Output @ 25° C						Module Function
	Type	Current		Voltage		Type	Current		Voltage			
		Min. mA	Max. mA	Min. V	Max. V		Min. mA	Max. A	Min. V	Max. V	Max. V peak	
*•IA16-11	AC or DC	5	30	—	—	DC	>0	0.2	>0	30	—	AC/DC Input
*•IA16-12	AC or DC	2	30	—	—	DC	>0	0.2	>0	30	—	AC/DC Input
*•OA16-55	DC	10	30	3.5	8	AC	5	1	12	280	500	AC Output
*•OA16-65	DC	10	30	3.5	8	AC	5	1	12	280	600	AC Output
*•OA16-66	DC	5	30	3.5	8	AC	5	1	12	280	600	AC Output

• Denotes UL
* Denotes CSA

New flat pack I/O modules permit PC board spacing on half-inch centers.

IACP/OACP/IDCP/ODCP SERIES

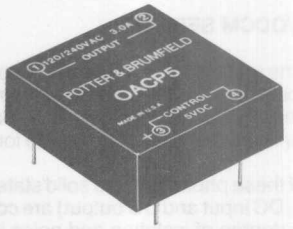
Potter & Brumfield flat pack, input/output (I/O) modules provide a means of reliably interfacing between microprocessor- or computer-based control systems and external input devices and loads such as switches, sensors, valves and motor starters.

These solid state I/O modules are offered in four photo-isolated versions: AC/DC input, AC output, DC input and DC output. All are color coded by function and provide a high degree of isolation and noise immunity between the logic and external components.

Input modules provide an output which is active low. Output modules can be controlled from active low or active high logic. The AC output module utilizes zero voltage turn-on and zero current turn-off of the load to greatly reduce generated EMI and RFI.

All flat pack modules have printed circuit terminals which can be soldered to a PC board. For user convenience the modules will also plug into miniature spring sockets making interchanging in the field quick and easy.

On modules of the same voltage type, AC or DC, the output of output modules is compatible with the input of input modules. This makes these modules ideal for series operation applications.



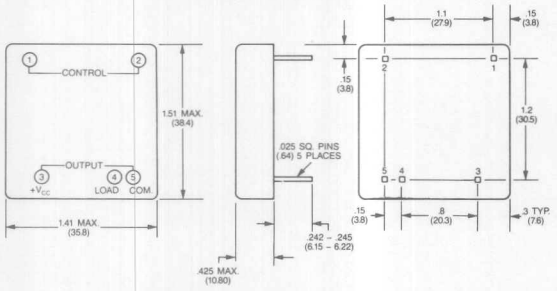
FEATURES

- **Mounted Height of Only .425″ (10.80 mm)**
- **Permit .500″ (12.70 mm) PC Board Spacing**
- **Competitive Footprint**
- **P&B DIP Input/Output Modules Used Internally**
- **Color Coded by Function**
- **Input and Output Ratings Marked on the Package**
- **High Degree of Isolation and Immunity to False Operation**
- **Series Compatible**
- **UL File E22575 & E29244**
- **CSA File LR15734**

ENGINEERING DATA

Switch Form: 1 Form A (SPST-NO).
Duty: Continuous.
Isolation: 4,000V rms, 60 Hz. (Pins 1 & 2 shorted; pins 3, 4 & 5 shorted).
Transient Noise Immunity: $>3{,}000V_{p\text{-}p}$ (NEMA ICS2-230).
Series Compatibility: The output of the AC output module is compatible with the input of the AC input module, and the output of the DC output module is compatible with the input of thhe DC input module.
Insulation Resistance: 10^{11} ohms @ 500V DC, minimum.
Moisture Resistance: 10^{11} ohms @ 500V DC, minimum.
Capacitance: 10 pF maximum (input to output).
Operating Temperature: −30°C to +80°C
Storage Temperature: −40°C to +85°C
Case Material: Self extinguishing, 94V0.
Solderability: 260°C for 10 seconds, maximum.
Approximate Weight: 0.8 oz. (21 grams).

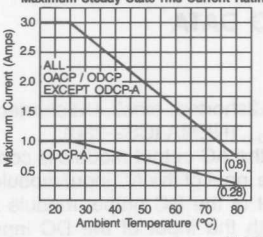
OUTLINE DIMENSIONS



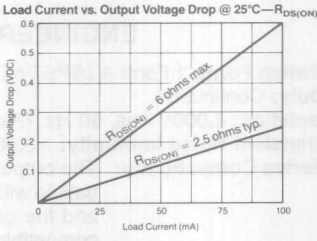
NOTE: Pin 5 is not present on OUTPUT MODULES.

ELECTRICAL CHARACTERISTICS

OACP/ODCP
Ambient Temperature vs. Maximum Steady State rms Current Rating

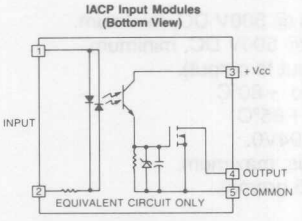


IACP/IDCP
Load Current vs. Output Voltage Drop @ 25°C—$R_{DS(ON)}$

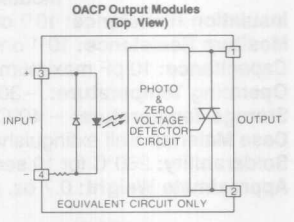


OPERATING DIAGRAMS

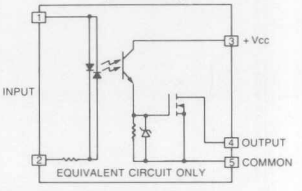
IACP Input Modules (Bottom View)



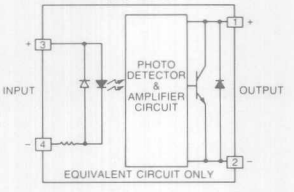
OACP Output Modules (Top View)



IDCP Input Modules (Bottom View)



ODCP Output Modules (Top View)



FLAT PACK I/O MODULE ORDERING INFORMATION

Part Number	Type	Case Color	System Voltage VDC	Input			Output		
				Voltage Range	Typical mA@ Min. Voltage	Typical mA@ Max. Voltage	Load Current Over Load Voltage Range	Blocking V_{peak}	Switching Type
*•IACP-5††	AC Input	Yellow	4.5-28	90-140 VAC	6	9	>0-100mA@>0-30VDC	—	Random
*•IACP-5A††	AC Input	Yellow	4.5-28	180-280 VAC	4.5	7	>0-100mA@>0-30VDC	—	Random
*•OACP-5	AC Output	Black	5	3-6 VDC	9	24	.02-3A@12-280VAC	500	Zero
*•OACP-5A	AC Output	Black	5	3-6 VDC	9	24	.02-3A@12-280VAC	600	Zero
*•IDCP-5	DC Input	White	4.5-28	10-36 VDC	3.5	13	>0-100mA@>0-30VDC	—	Random
*•IDCP-5A	DC Input	White	4.5-28	18-60 VDC	4	14	>0-100mA@>0-30VDC	—	Random
*•ODCP-5	DC Output	Red	5	3-6 VDC	7	18	.02-3A@5-60VDC	—	Random
*•ODCP-5A	DC Output	Red	5	3-6 VDC	7	18	.02-1A@10-200VDC	—	Random

††Input will operate on AC or DC voltage.

• Denotes UL
* Denotes CSA

New slim line I/O modules save space on your PC board.

IACM/OACM/IDCM/ODCM SERIES

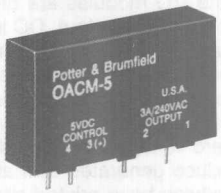
Space-saving slim line input/output (I/O) modules provide a means of reliably interfacing between microprocessor-or computer-based control systems and external input devices and loads. Basic specifications for these 0.4″ wide units are comparable to those for our standard 0.6″ wide modules.

All four versions of these photo-isolated solid state I/O modules (AC/DC input, AC output, DC input and DC output) are color coded by type. They provide a high degree of isolation and noise immunity between the logic and external components.

Input modules provide an output which is active low. Output modules can be controlled from active low or active high logic. The AC output module utilizes zero voltage turn-on and zero current turn-off of the load to greatly reduce generated EMI and RFI.

Slim line modules have printed circuit terminals which can be soldered to a PC board. For user convenience the modules will also plug into miniature spring sockets making interchanging in the field quick and easy.

On modules of the same voltage type, AC or DC, the output of the output modules is compatible with the input of the input modules. This makes these modules ideal for series operation applications.



ENGINEERING DATA

Switch Form: 1 Form A (SPST-NO).
Duty: Continuous.
Isolation: 4,000V rms, 60 Hz. (Pins1&2shorted; pins3,4&5shorted).
Transient Noise Immunity: >3,000V_{p-p} (NEMA ICS2-230).
Series Compatibility: The output of the AC output module is compatible with the input of the AC input module, and the output of the DC output module is compatible with the input of the DC input module.
Insulation Resistence: 10^{11} ohms @ 500V DC, minimum.
Mositure Resistence: 10^{11} ohms @ 500V DC, minimum.
Capacitance: 10 pF maximum (input to output).
Operating Temperature: −30°C to +80°C
Storage Temperature: −40°C to +85°C
Case Material: Self extinguishing, 94V0.
Solderability: 260°C for 10 seconds, maximum.
Approximate Weight: 0.7 oz. (19.5 grams).

FEATURES

- **Slim Line .4″ (10.16mm) Thick Package**
- **Footprint Same as .6″ (15.24mm) Thick Package**
- **4,000 Vrms Optical Isolation**
- **Color Coded by Function**
- **High Degree of Isolation and Immunity to False Operation**
- **Series Compatible**
- **UL File E22575 & E29244**
- **CSA File LR15734**

SLIM LINE I/O MODULE ORDERING INFORMATION

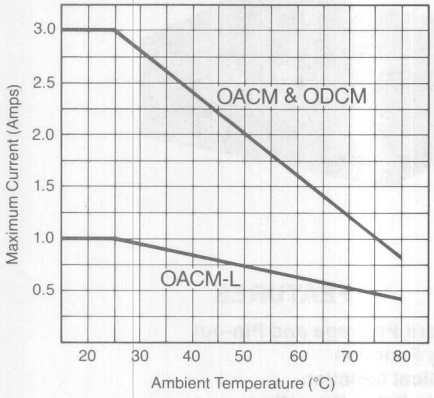
Part Number	Type	Case Color	System Voltage VDC (Nom./Range)	Input			Output		
				Voltage Range	§ Typical mA@ Min. Voltage	§ Typical mA@ Max. Voltage	Load Current Over Load Voltage Range	Blocking V_{peak}	Switching Type
*•IACM-5††	AC Input	Yellow	5/3-6	90-140VAC	6	9	>0-100mA@>0-30VDC	—	Random
*•IACM-5A††	AC input	Yellow	5/3-6	180-240VAC	4.5	7	>0-100mA@>0-30VDC	—	Random
*•OACM-5	AC Output	Black	5/3-6	3-6VDC	9	24	.02-3A@12-280VAC	±600	Zero
*•OACM-5L	AC Output	Black	5/3-6	3-6VDC	9	24	.01-1A@12-280VAC	±600	Zero
*•OACM-U	AC Output	Black	5,12/3-15	3-15VDC	5	38	.02-3A@12-280VAC	±600	Zero
*•IDCM-5	DC Input	White	5/3-6	10-36VDC	3.5	13	>0-100mA@>0-30VDC	—	Random
*•ODCM-5	DC Output	Red	5/3-6	3-6VDC	7	18	.02-3A@5-60VDC	—	Random

§Input current is approximately linear with respect to input voltage.
††Input will operate on AC or DC voltage.

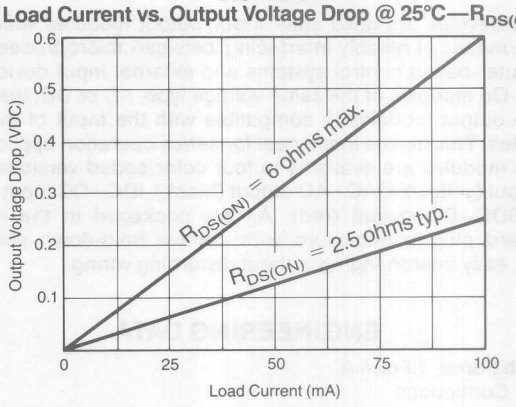
• Denotes UL
* Denotes CSA

ELECTRICAL CHARACTERISTICS

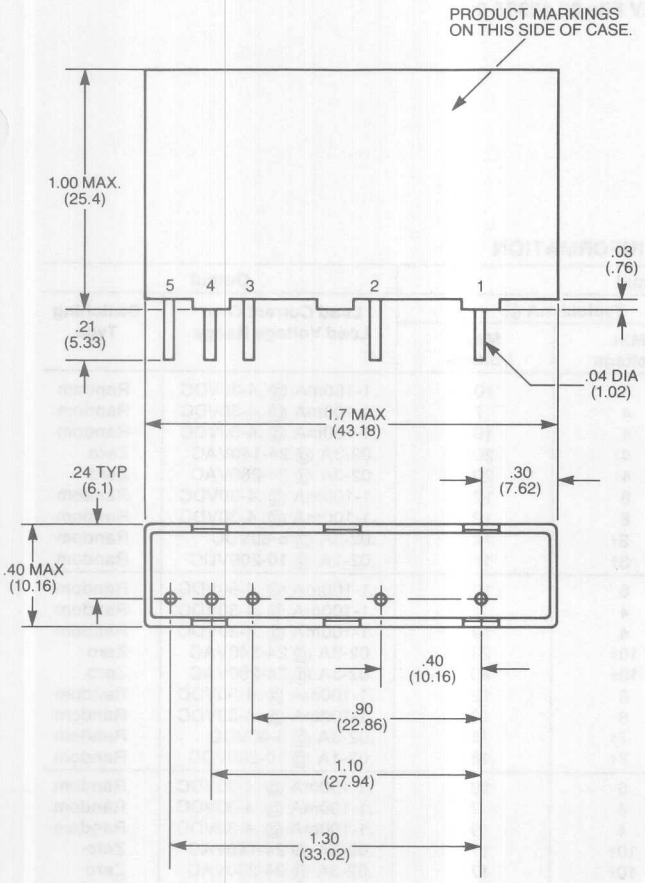
OACM/ODCM
Ambient Temperature vs.
Maximum Steady State rms Current Rating



IACM/IDCM
Load Current vs. Output Voltage Drop @ 25°C—$R_{DS(ON)}$



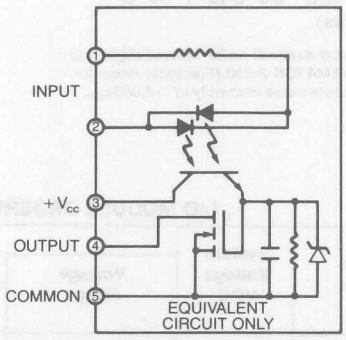
OUTLINE DIMENSIONS



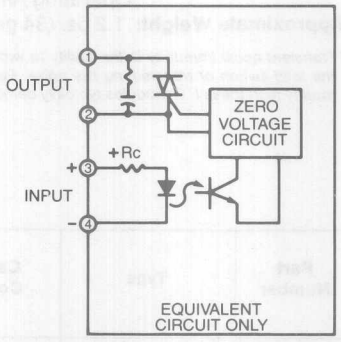
NOTE: Pin 5 is not present on Output Modules (OACM & ODCM)

OPERATING DIAGRAM

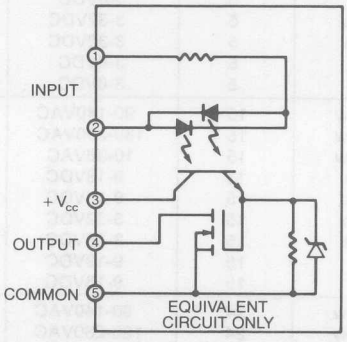
IACM Input Modules



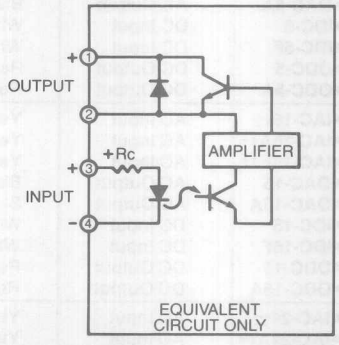
OACM Output Modules



IDCM Input Module



ODCM Output Module



Opto-isolated I/O modules operate directly from logic ICs such as CMOS, TTL, I²L, ECL and HTL.

IAC/OAC/IDC/ODC SERIES

These devices are solid state input/output modules which provide a means of reliably interfacing between microprocessor- or computer-based control systems and external input devices and loads. On modules of the same voltage type, AC or DC, the output of the output modules is compatible with the input of the input modules. This makes them ideal for series operation applications.

The modules are available in four color coded versions: IAC—AC input (yellow), OAC—AC output (black), IDC—DC input (white) and ODC—DC output (red). All are packaged in the industry standard plug-in enclosure with captive hold-down screw for quick, easy interchanging without disturbing wiring.

ENGINEERING DATA

Switch Form: 1 Form A
Duty: Continuous
Isolation: 4,000V rms, 60 Hz. (Pins 1 & 2 shorted; pins 3, 4 & 5 shorted)
Insulation Resistance: 10^9 ohms
Transient Noise Immunity: $>3{,}000V_{p\text{-}p}$*
Series Compatibility: The output of the AC output module is compatible with the input of the AC input module, and the output of the DC output module is compatible with the input of the DC input module.
Temperature Range: Storage: —40°C to + 85°C
Operating Ambient: —30°C to + 80°C
Approximate Weight: 1.2 oz. (34 grams)

**Transient noise immunity is the ability to withstand external noise without triggering the load switch or transmitting the noise. Per NEMA ICS 2-230 (Electrical noise immunity test) these I/O modules typically demonstrate noise immunity of $>8{,}000V_{p\text{-}p}$.*

FEATURES

- **Industry Standard Package and Pin-out**
- **Color Coded by Function**
- **4,000V rms Optical Isolation**
- **High Immunity to False Operation**
- **Series Compatible**
- **Output Modules can be Controlled From Sinking or Sourcing Logic**
- **UL File E22575 & E29244**
- **CSA File LR15734**
- **SEV File 83.12985.01**

I/O MODULE ORDERING INFORMATION

Part Number	Type	Case Color	System Voltage VDC	Input			Output	
				Voltage Range	Typical mA @ Min. Voltage	Typical mA @ Max. Voltage	Load Current Over Load Voltage Range	Switching Type
■*•IAC-5††	AC Input	Yellow	5	90-140VAC	6	10	.1-100mA @ .4-30VDC	Random
■*•IAC-5A††	AC Input	Yellow	5	180-280VAC	4	7	.1-100mA @ .4-30VDC	Random
■*•IAC-5E††	AC Input	Yellow	5	10-36VAC	4	19	.1-100mA @ .4-30VDC	Random
■*•OAC-5	AC Output	Black	5	3-6VDC	4†	20†	.02-3A @ 24-140VAC	Zero
■*•OAC-5A	AC Output	Black	5	3-6VDC	4†	20†	.02-3A @ 24-280VAC	Zero
*•IDC-5	DC Input	White	5	3-32VDC	8	12	.1-100mA @ .4-30VDC	Random
*•IDC-5F	DC Input	White	5	3-32VDC	8	12	.1-100mA @ .4-30VDC	Random
*•ODC-5	DC Output	Red	5	3-6VDC	3†	14†	.02-3A @ 5-60VDC	Random
*•ODC-5A	DC Output	Red	5	3-6VDC	3†	14†	.02-1A @ 10-200VDC	Random
■*•IAC-15††	AC Input	Yellow	15	90-140VAC	6	10	.1-100mA @ .4-30VDC	Random
■*•IAC-15A††	AC Input	Yellow	15	180-280VAC	4	7	.1-100mA @ .4-30VDC	Random
■*•IAC-15E††	AC Input	Yellow	15	10-36VAC	4	19	.1-100mA @ .4-30VDC	Random
■*•OAC-15	AC Output	Black	15	9-18VDC	10†	23†	.02-3A @ 24-140VAC	Zero
■*•OAC-15A	AC Output	Black	15	9-18VDC	10†	23†	.02-3A @ 24-280VAC	Zero
*•IDC-15	DC Input	White	15	3-32VDC	8	12	.1-100mA @ .4-30VDC	Random
*•IDC-15F	DC Input	White	15	3-32VDC	8	12	.1-100mA @ .4-30VDC	Random
*•ODC-15	DC Output	Red	15	9-18VDC	7†	16†	.02-3A @ 5-60VDC	Random
*•ODC-15A	DC Output	Red	15	9-18VDC	7†	16†	.02-1A @ 10-200VDC	Random
■*•IAC-24††	AC Input	Yellow	24	90-140VAC	6	10	.1-100mA @ .4-30VDC	Random
■*•IAC-24A††	AC Input	Yellow	24	180-280VAC	4	7	.1-100mA @ .4-30VDC	Random
■*•IAC-24E††	AC Input	Yellow	24	10-36VAC	4	19	.1-100mA @ .4-30VDC	Random
■*•OAC-24	AC Output	Black	24	18-28VDC	10†	17†	.02-3A @ 24-140VAC	Zero
■*•OAC-24A	AC Output	Black	24	18-28VDC	10†	17†	.02-3A @ 24-280VAC	Zero
*•IDC-24	DC Input	White	24	3-32VDC	8	12	.1-100mA @ .4-30VDC	Random
*•IDC-24F	DC Input	White	24	3-32VDC	8	12	.1-100mA @ .4-30VDC	Random
*•ODC-24	DC Output	Red	24	18-28VDC	7†	12†	.02-3A @ 5-60VDC	Random
*•ODC-24A	DC Output	Red	24	18-28VDC	7†	12†	.02-1A @ 10-200VDC	Random

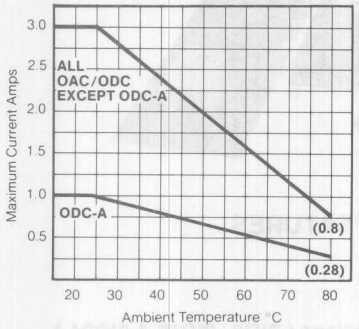
†LED in series with input.
††Input will operate on AC or DC voltage.

• Denotes UL
* Denotes CSA
■ Denotes SEV

ELECTRICAL CHARACTERISTICS

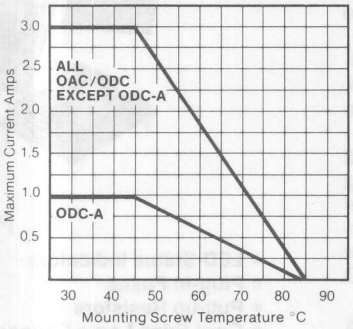
OAC/ODC

Ambient Temperature vs Maximum Steady State rms Current Rating

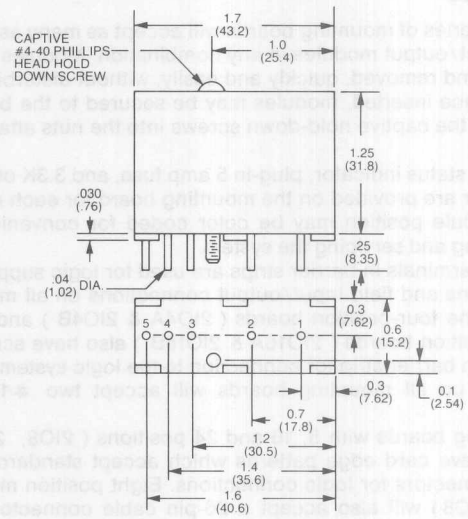


OAC/ODC

Module Mounting Temperature vs Maximum Steady State Current Rating



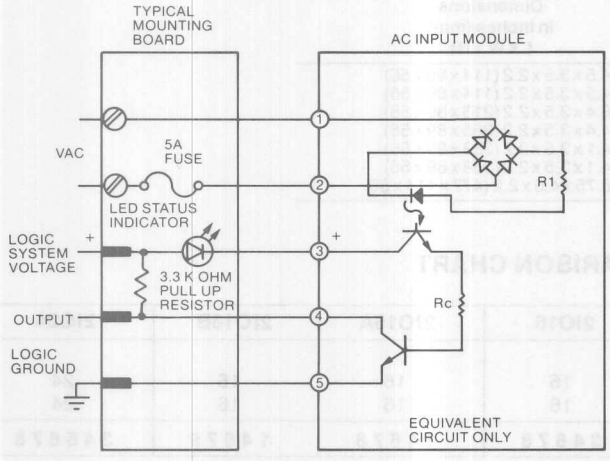
OUTLINE DIMENSIONS



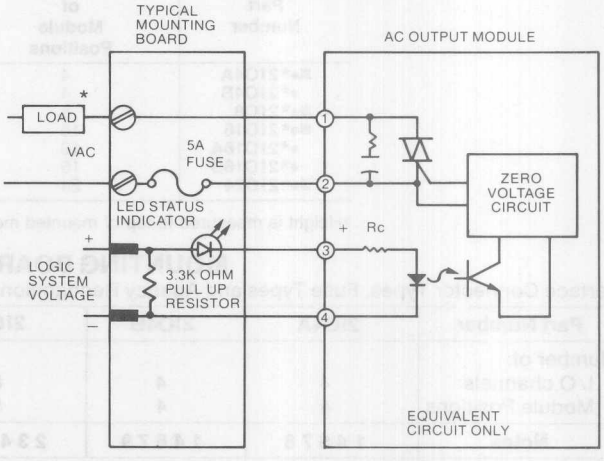
NOTE: Pin 5 is not present on OUTPUT MODULES.

OPERATING DIAGRAMS

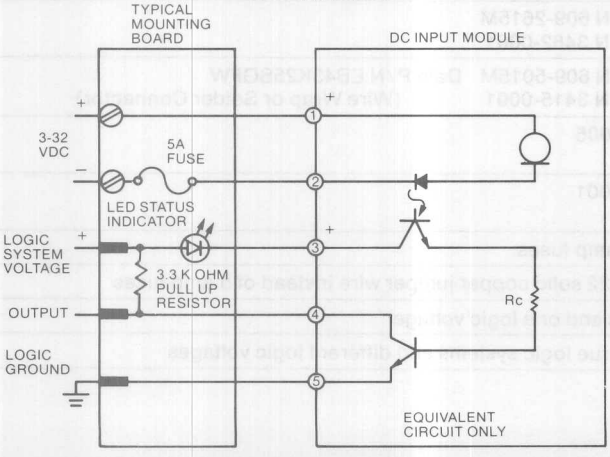
IAC Modules



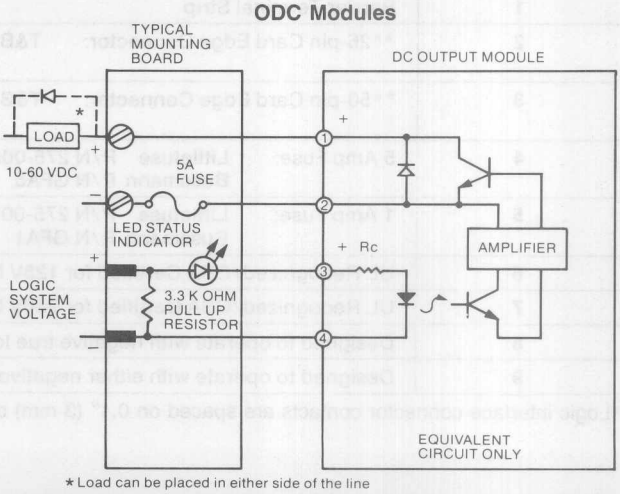
OAC Modules



IDC Modules



ODC Modules



★ Load can be placed in either side of the line

Mounting boards for input/output modules.

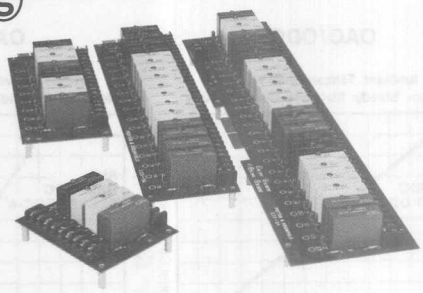
2IO SERIES

The 2IO series of mounting boards will accept as many as 4, 8, 16 or 24 input/output modules in any combination. Modules may be inserted and removed, quickly and easily, without disturbing field wiring. Once inserted, modules may be secured to the board by threading the captive hold-down screws into the nuts attached to the board.

An LED status indicator, plug-in 5 amp fuse, and 3.3K ohm pull-up resistor are provided on the mounting board for each module. Each module position may be color coded for convenience in maintaining and servicing the system.

Screw terminals in barrier strips are used for logic supply input connections and field input/output connections on all mounting boards. The four-position boards (2IO4A & 2IO4B) and two of the 16-position boards (2IO16A & 2IO16B) also have screw terminals in a barrier strip for connection to the logic system. Screw terminals on all mounting boards will accept two #12 AWG wires.

Mounting boards with 8, 16 and 24 positions (2IO8, 2IO16 & 2IO24) have card edge patterns which accept standard 50-pin cable connectors for logic connections. Eight position mounting board (2IO8) will also accept a 26-pin cable connector. Each module position on these boards is served by two of the cable's conductors. Odd-numbered pins are used for signals while even-numbered pins are connected to logic ground. Jumper locations permit logic supply input to be introduced through the cable, rather than the screw terminals.



FEATURES

- **LED Status Indicators**
- **Plug-in Fuses**
- **Pull-up Resistors**
- **Card Edge Logic Connections (2IO8, 2IO16 & 2IO24)**
- **Screw terminal Logic Connections (2IO4A, 2IO4B, 2IO16A & 2IO16B)**
- **Screw Terminals for Field Wiring**
- **UL File E61482**
- **CSA File LR15743**
- **SEV File 83.12985.02**

ORDERING INFORMATION

Part Number	Number of Module Positions	Approximate Dimensions in inches (mm) L x W x H†
■●*2IO4A	4	4.5 x 3.5 x 2.2 (114 x 89 x 56)
●*2IO4B	4	4.5 x 3.5 x 2.2 (114 x 89 x 56)
■●*2IO8	8	8.4 x 3.5 x 2.2 (213 x 89 x 56)
■●*2IO16	16	14.4 x 3.5 x 2.2 (366 x 89 x 56)
●*2IO16A	16	14.1 x 3.5 x 2.2 (358 x 89 x 56)
●*2IO16B	16	14.1 x 3.5 x 2.2 (358 x 89 x 56)
■●*2IO24	24	18.75 x 4.5 x 2.2 (477 x 114 x 56)

†Height is measured to top of mounted modules.

MOUNTING BOARD COMPARISON CHART

Interface Connector Types, Fuse Types and Agency Recognitions

Part Number	2IO4A	2IO4B	2IO8	2IO16	2IO16A	2IO16B	2IO24
Number of:							
I/O channels	4	4	8	16	16	16	24
Module Positions	4	4	8	16	16	16	24
Notes	**1 4 6 7 8**	**1 4 6 7 9**	**2 3 4 6 7 8**	**3 4 6 7 8**	**1 4 6 7 8**	**1 4 6 7 9**	**3 4 5 6 7 8**
1	Barrier Terminal Strip						
2	**26-pin Card Edge Connector: T&B Ansley P/N 609-2615M; 3M P/N 3462-0001						
3	**50-pin Card Edge Connector: T&B Ansley P/N 609-5015M Dale P/N EB43K25SGFW; 3M P/N 3415-0001 (Wire Wrap or Solder Connector)						
4	5 Amp Fuse: Littlefuse P/N 275-005 & P/N 255005; Bussmann P/N GFA5						
5	1 Amp Fuse: Littlefuse P/N 275-001 & P/N 255001; Bussmann P/N GFA1						
6	UL Recognized/CSA Certified for 125V Max. with 5 amp fuses						
7	UL Recognized/CSA Certified for 250V Max. with #22 solid copper jumper wire instead of 5 amp fuses						
8	Designed to operate with negative true logic systems and one logic voltage						
9	Designed to operate with either negative or positive true logic systems and different logic voltages						

**Logic interface connector contacts are spaced on 0.1" (3 mm) centers.

● Denotes UL
* Denotes CSA
■ Denotes SEV

I/O quad modules feature four input or output channels in a single plug-in package in half the PC board space as four single I/O modules.

IACQ/OACQ/IDCQ/ODCQ SERIES

Input/Output (I/O) quad modules each have four I/O channels. These units provide a highly space-efficient means of reliably interfacing microprocessor- or computer-based control systems with external input devices and loads such as switches, sensors, valves and motor starters.

I/O quad modules are available in four photo-isolated versions: AC input, AC output, DC input and DC output. All are color coded by function and provide a high degree of isolation and noise immunity between the logic and external components.

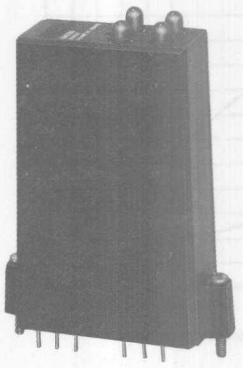
Quad modules from Potter & Brumfield are packaged in an industry standard plug-in enclosure with captive hold-down screws. This convenient enclosure allows modules to be interchanged in the field quickly and easily without disturbing wiring.

The outputs of the output quad modules are compatible with the inputs of the input quad modules on modules of the same voltage type. This makes these modules ideally suited for series operation applications. The quad output module is turned on by sinking the negative input terminals (IN) to logic ground. The quad input module output terminals (OUT) sink current to logic ground when proper input voltage is applied to input terminals.

ENGINEERING DATA

Switch Form: 4-1 Form A
Duty: Continuous
Isolation: 4,000V rms, 60 Hz. (Pins 1, 2 & 3 shorted; pins 8, 9 & 10 shorted; pins 4, 5, 6 & 7 shorted; pins 11, 12, 13 & 14 shorted)
Insulation Resistance: 10^9 ohms
Transient Noise Immunity: $3{,}000V_{p\text{-}p}$*
Series Compatibility: The output of the AC output quad module channel is compatible with the input of the AC input quad module channel, and the output of the DC output quad module channel is compatible with the input of the DC input quad module channel.
Temperature Range: Storage: —40°C to +85°C
Operating Ambient: —30°C to +80°C
Approximate Weight: 4.9 oz. (140 grams)

**Transient noise immunity is the ability to withstand external noise without triggering the load switch or transmitting the noise. Per NEMA ICS 2-230 (Electrical noise immunity test) these I/O modules typically demonstrate noise immunity of $>8{,}000V_{p\text{-}p}$.*



FEATURES

- **Four SPST-NO Switching**
- **Industry Standard Package and Pin-out**
- **Color Coded by Function**
- **4,000V rms Optical Isolation**
- **High Immunity to False Operation**
- **Series Compatible**
- **Output Modules can be Controlled From Sinking Logic**
- **Input Modules Have Reverse Voltage Feedback Protection for a "True" 30 Volt Output Rating**
- **UL File E22575 & E29244**
- **CSA File LR15734**

I/O QUAD MODULE ORDERING INFORMATION

Part Number	Type	Case Color	System Voltage VDC	Input			Output	
				Voltage Range	Typical mA @		Load Current Over Voltage Range	Switching Type
					Min. Voltage	Max. Voltage		
•IACQ-5††	AC Input	Yellow	5	90-140VAC	6	10	.1-100mA @ .4-30VDC	Random
•IACQ-5A††	AC Input	Yellow	5	180-280VAC	4	7	.1-100mA @ .4-30VDC	Random
•IACQ-5E††	AC Input	Yellow	5	10-36VAC	4	19	.1-100mA @ .4-30VDC	Random
*•OACQ-5	AC Output	Black	5	4-8VDC	6	24	.02-3A @ 24-140VAC	Zero
*•OACQ-5A	AC Output	Black	5	4-8VDC	6	24	.02-3A @ 24-280VAC	Zero
•IDCQ-5††	DC Input	White	5	10-36VDC	4	19	.1-100mA @ .4-30VDC	Random
•IDCQ-5F	DC Input	White	5	4-16VDC	4	27	.1-100mA @ .4-30VDC	Random
*•ODCQ-5	DC Output	Red	5	4-8VDC	6	24	.02-3A @ 5-60VDC	Random
*•ODCQ-5A	DC Output	Red	5	4-8VDC	6	24	.02-1A @10-200VDC	Random

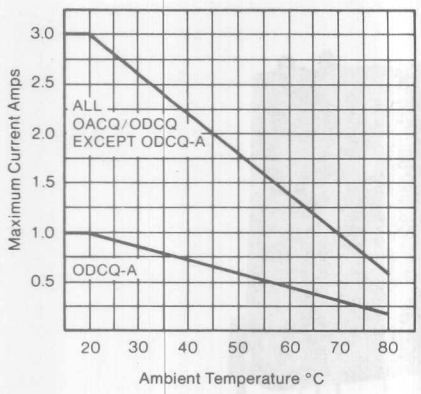
††Input will operate on AC or DC voltage.

• Denotes UL
* Denotes CSA

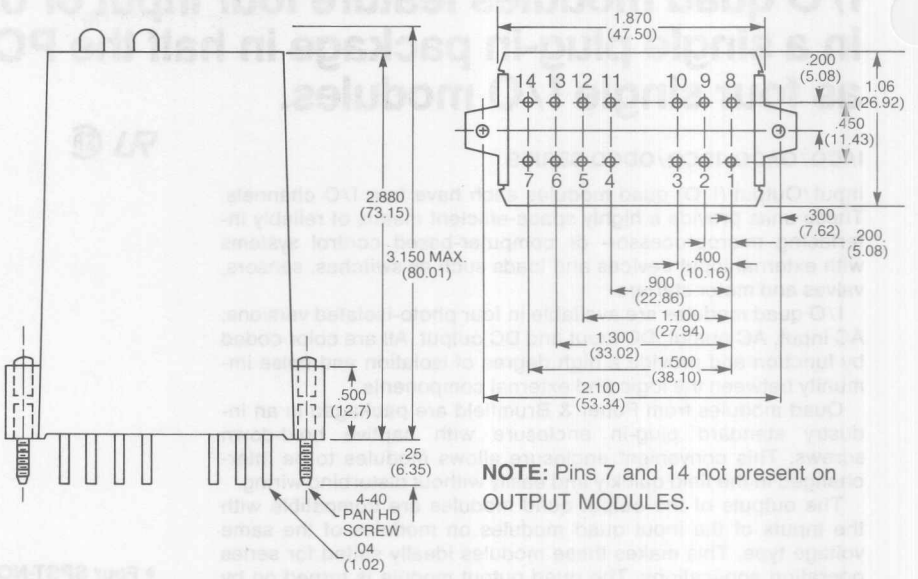
ELECTRICAL CHARACTERISTICS

OACQ/ODCQ

Ambient Temperature vs. Maximum Steady State Current Rating
(Per Channel)



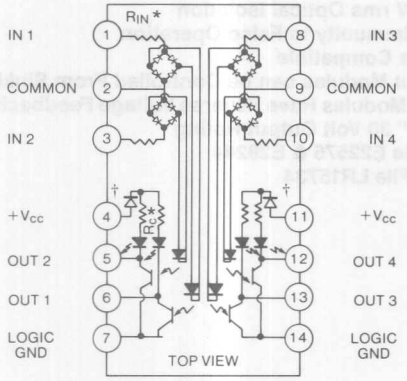
OUTLINE DIMENSIONS



NOTE: Pins 7 and 14 not present on OUTPUT MODULES.

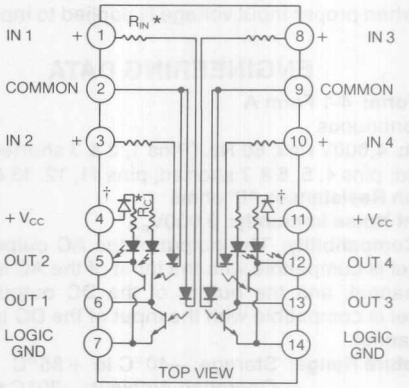
OPERATING DIAGRAMS

IACQ/IDCQ Input Modules



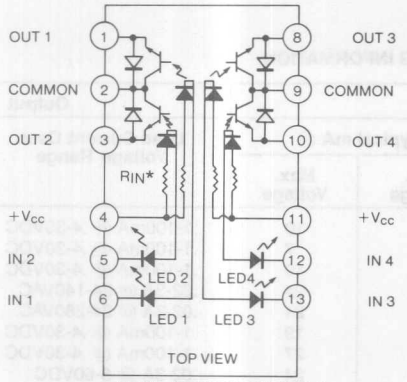
- EQUIVALENT CIRCUIT ONLY
- NEGATIVE TRUE LOGIC
- INDUCTIVE LOADS MUST BE DIODE SUPPRESSED

IDCQ-F Input Module



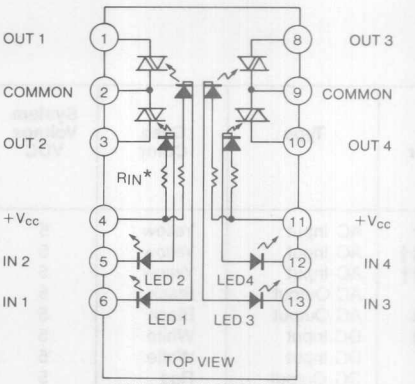
- EQUIVALENT CIRCUIT ONLY
- NEGATIVE TRUE LOGIC
- INDUCTIVE LOADS MUST BE DIODE SUPPRESSED

ODCQ Output Module



- EQUIVALENT CIRCUIT ONLY
- NEGATIVE TRUE LOGIC
- INDUCTIVE LOADS MUST BE DIODE SUPPRESSED

OACQ Output Module



- EQUIVALENT CIRCUIT ONLY
- NEGATIVE TRUE LOGIC

* 4 places

† A diode (2 places) to prevent reverse voltage feedback through the logic power supply.

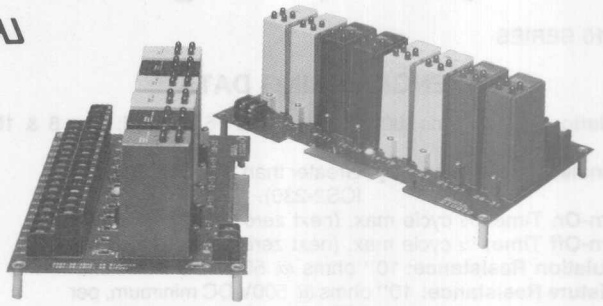
Mounting boards for input/output quad modules.

2IOQ SERIES

The 2IOQ series of mounting boards will accept as many as 24 or 32 I/O channels (6 or 8 quad modules). Modules may be inserted and removed, quickly and easily, without disturbing field wiring. Once inserted, modules may be secured to the board by threading the captive hold-down screws into the nuts attached to the board.

Screw terminals in barrier strips are provided for the field input/output connections and logic power supply connections on all of the quad mounting boards. The screw terminals will accept two #12 AWG wires. A plug-in 5 amp fuse is provided on the field wiring side of the mounting boards for two of each quad module's four channels. A jumper wire is provided on the board that connects the two common terminals of the quad module. This jumper can be removed, isolating two channels and the 5 amp fuse from the other two channels and fuse.

Both of the quad boards (2IOQ24 & 2IOQ32) have card edge patterns which accept standard 50-pin cable connectors for the logic connections. The 24 channel boards (2IOQ24) will also accept a 27-pin single row male or female header assembly for the logic connections. Both boards and the quad modules are designed to operate with negative true logic systems. The quad output module is turned on by sinking the negative input terminals (IN) to logic ground. The quad input module output terminals (OUT) sink current to logic ground when proper input voltage is applied to input terminals. The quad boards are designed to accept quad input or output modules in any of the various positions as long as the modules are of the same logic voltage type.



FEATURES

- **Plug-in Fuses**
- **Card Edge Logic Connections**
- **Capable of Accepting a Male Header for Logic Connections (2IOQ24)**
- **Screw Terminals for Field Wiring**
- **Jumper Disconnect on Field Side Commoned Terminals**
- **UL File 61482**

ORDERING INFORMATION

Part Number	Number of Quad Module Positions	Approximate Dimensions in inches (mm) L x W x H†
•2IOQ24	6	8.0 x 6.0 x 4.0 (203 x 152 x 102)
•2IOQ32	8	10.2 x 6.2 x 4.0 (259 x 158 x 102)

†Height is measured to top of mounted modules

MOUNTING BOARD COMPARISON CHART

Interface Connector Types, Fuse Types and Agency Recognitions

Part Number	2IOQ24	2IOQ32
Number of: I/O Channels / Module Positions	24 / 6	32 / 8
Notes	1 2 3 4 5 6 7	1 3 4 5 6 7
1	*50-Pin Card Edge Connector: T&B Ansley P/N 609-5015M; 3M P/N 3415-0001; Dale P/N EB43K25SGFW (Wire Wrap or Solder Connector)	
2	*Will Accept 27-pin Single Row Header: Female Type: (Straight): Samtec P/N SSW-127-02-T-S; Methode P/N 1000-027-2101; (Right Angle): Samtec P/N SSW-127-03-T-S-RA	Male Type: (Straight): Samtec P/N TSW-127-08-T-S; Methode P/N 1100-1-127-01; AMP P/N 2-102202-4; (Right Angle): Samtec P/N TSW-127-09-T-S-RA; Methode P/N 1100-3-127-01; AMP P/N 2-102203-4
3	5 Amp Fuse: Littlefuse P/N 275-005 & P/N 255005 Bussmann P/N GFA5	
4	1 Amp Fuse: Littlefuse P/N 275-001 & P/N 255001 Bussmann P/N GFA1	
5	UL Recognized/CSA Certified for 125V Max. with 5 amp fuses. Pending	
6	UL Recognized/CSA Certified for 250V Max. with #22 solid copper jumper wire instead of 5 amp fuses. Pending	
7	Removable jumper wires are provided to isolate two channels and 5 amp fuse from the other two channels and 5 amp fuse.	

*Logic interface connector contacts are spaced on 0.1" (3 mm) centers.

• Denotes UL

New OZ16 solid state relay provides 1 amp load switching in a 16 pin IC package.

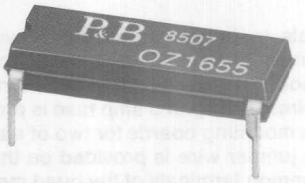
OZ16 SERIES

ENGINEERING DATA

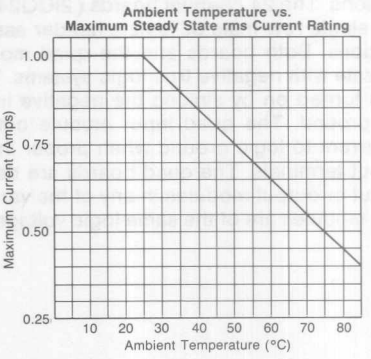
Isolation: 4,000V rms, 60 Hz. (Pins 1 & 16 shorted; pins 8 & 10 shorted).
Transient Noise Immunity: Greater than 3,000V_{p-p} (NEMA ICS2-230).
Turn-On Time: ½ cycle max. (next zero voltage crossover).
Turn-Off Time: ½ cycle max. (next zero current crossover).
Insulation Resistance: 10^{11} ohms @ 500V DC minimum.
Moisture Resistance: 10^{11} ohms @ 500V DC minimum, per MIL-STD-883C Method 1004.4.
Capacitance: 10 pF maximum (input to output).
Operating Temperature: −30°C to +85°C
Storage Temperature: −40°C to +100°C
Vibration: 100 g, 10 to 2,000 Hz.
Shock: 1,500 g @ 0.5 millisecond, per MIL-STD-883C Method 2002.3.
Case: 16 pin DIP style package with only 4 terminals.
Case Material: Self extinguishing, filled epoxy, 94V1.
Solderability: 260°C for 10 seconds, maximum.
Approximate Weight: 0.07 oz. (2 grams).

FEATURES

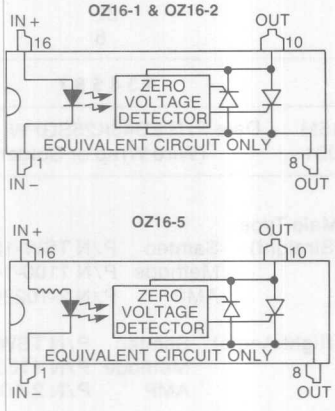
- **DIP, auto insertable termination**
- **Optical Isolation**
- **SPST-NO Solid State SCR Output**
- **Current or Voltage Operation**
- **5V_p Zero Voltage Turn-On (Meets FCC & VDE Specifications)**
- **0.005 to 1A rms @ 12 to 280V AC Output Rating**
- **≥1,000 V/μs Static dv/dt Rating**
- **≥100 V/μs Commutating dv/dt Rating (Capable of Switching Highly Inductive Loads)**
- **Capable of Being Used as a Power Thyristor Driver**
- **UL File E29244 — Industrial Control Equipment, Intrinsically Safe Equipment and Systems for Use in Hazardous Locations.**
- **CSA File LR15734**



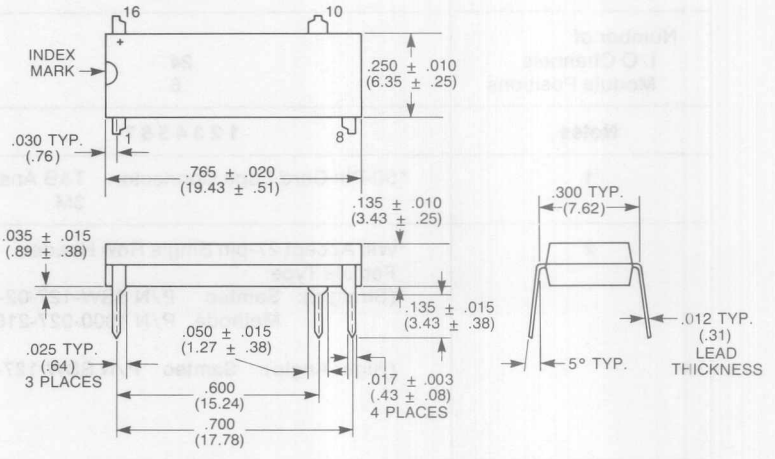
ELECTRICAL CHARACTERISTICS



OPERATING DIAGRAMS



OUTLINE DIMENSIONS



OZ16 ORDERING INFORMATION

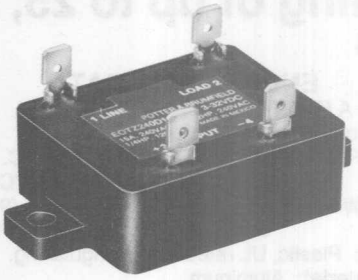
Part Number	Input					Output @ 25°C					
		Current		Voltage			Current		Voltage		
	Type	Min. mA	Max. mA	Min. V	Max. V	Type	Min. mA	Max. A	Min. V	Max. V	Max. V_{peak}
*•OZ16-51	DC	10	30	—	—	AC	5	1	12	280	500
*•OZ16-52	DC	5	30	—	—	AC	5	1	12	280	500
*•OZ16-55	DC	10	30	3.5	8	AC	5	1	12	280	500
*•OZ16-62	DC	5	30	—	—	AC	5	1	12	280	600
*•OZ16-65	DC	10	30	3.5	8	AC	5	1	12	280	600

• Denotes UL
* Denotes CSA

Low profile, cost saving EOTZ series.

ENGINEERING DATA

Form: 1 Form A (SPST) normally open.
Duty: Continuous
Turn-On Time: Typical turn-on at first zero-voltage crossover.
Turn-Off Time: Typical turn-off at first zero-crossover.
Transient Noise Immunity: >3,000V (p-p) per NEMA ICS 2-230.
Isolation: 4,000V rms, 60 Hz.
Insulation Resistance: 10^9 ohms.
Temperature Range:
Storage: −40°C to +85°C
Operating Ambient: −30°C to −80°C (Refer to output specifications and current derating curves.)
Case and Mounting: Refer to Outline Dimensions.
Termination: Refer to Outline Dimensions.
Approximate Weight: 2.0 oz. (56 grams).



Required Heatsink For Max. Current Switching

Current @25°C	Required Thermal Resistance Rating	Typical Flat Surface Area Per Unit
● 6	None	None
■10	2.0°C/W	36in²(232 cm²)
▲15	1.0°C/W	144in²(929 cm²)

● = Free Air Rating

Note: Relays should be mounted securely to the heatsink using thermal joint compound between the relay and heatsink.

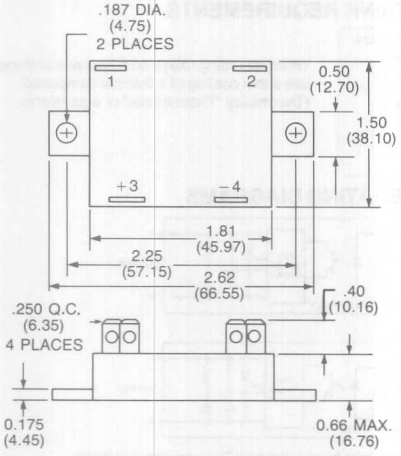
FEATURES

- All Solid State Relay
- 4,000V rms Optical Isolation
- Zero Voltage Turn-on
- Low Profile, Plastic Base Package
- 3 to 32V DC Input
- SPST-NO Solid State Triac Output
- 0.02 to 15A rms @ 24 to 280V AC Output
- .250" (6.35mm) Quick Connect Terminals
- High Immunity to False Operation
- CMOS, TTL, I²L, ECL & HTL Compatible
- UL File E22575
- CSA File LR15734

EOTZ ORDERING INFORMATION

Part Number	Input		Output					
	Range VDC	Typ. mA	A_{rms} Min.	A_{rms} Max.	VAC Min.	VAC Max.	V_{peak} Blocking	Switching Type
EOTZ-240D15	3-32	9-13mA	0.02	15	24	280	±600	Zero

OUTLINE DIMENSIONS



SCREW TERMINAL ADAPTERS

(For .250" quick connect terminals)

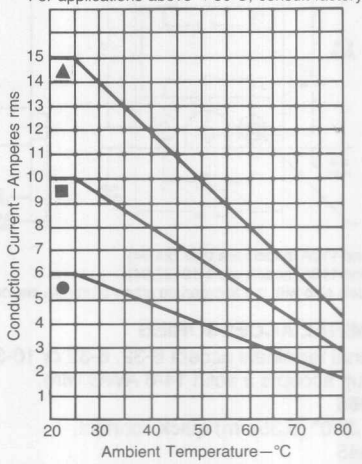
7AB1 STRAIGHT

7AB2 RIGHT ANGLE

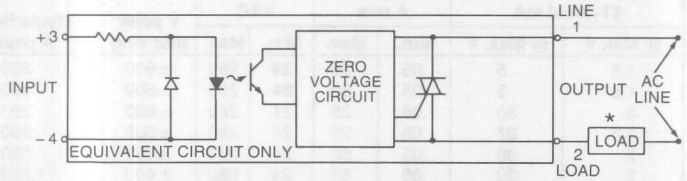
Note: Adapters are offered in straight and right angle configurations. Terminals are designed to push on easily and lock in place when used with .250" (6.35 mm) x .032" (0.8 mm) NEMA or DIN standard male tab terminals. The screws are 6-32 binding head and terminals are brass.

ELECTRICAL CHARACTERISTICS

Steady State rms Current Rating vs Maximum Ambient Temperature
For applications above +80°C, consult factory.



OPERATING DIAGRAM



*Load can be placed in series with terminal 1 if desired.

• Denotes UL
* Denotes CSA

New SSR series solid state relays provide paired SCR switching of up to 25, 50, 80, or 110 amps.

SSR SERIES

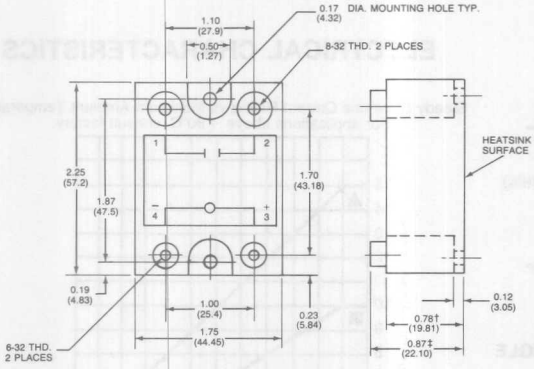
ENGINEERING DATA

Form: 1 Form A (SPST-NO).
Duty: Continuous.
Temperature Range: Storage: −40°C to +120°C.
Operating: −30°C to +80°C.
Approximate Weight: 25A & 50A Types: 3.5 oz. (98g).
80A & 110A Types: 4 oz. (113g).
Case Material: Plastic, UL rated self-extinguishing.
Base Plate Material: Aluminum.
Isolation: 4,000V rms minimum.
Isolation Resistance: 10^{10}ohms@ 500 VDC minimum.
Capacitance: 10 pf maximum (input to output).
Static dv/dt: 500V/μs minimum.
Off-state Leakage Current: 10mA max. @ max. VAC.
Load Power Factor Rating: 0.5 to 1.0.
Turn-on Time: Zero Voltage Turn-on Units:
DC input type; 8.3ms max., 60 Hz.
AC input type; 10ms max., 60Hz.
Random Voltage Turn-on Units: 0.2ms max.
Turn-off Time: DC input type; 8.3ms max., 60 Hz.
AC input type; 40ms max., 60Hz.
On State Voltage: 1.6V max.

FEATURES

- **Standard "Hockey Puck" Package**
- **Inverse Parallel SCR Output**
- **Zero Voltage and Random Voltage Turn-on Models**
- **AC & DC Input Versions**
- **4000V rms Optical Isolation**
- **UL Recognized (25, 50 & 80A Versions)**
- **CSA Certified (25, 50 & 80A Versions) File LR32053**

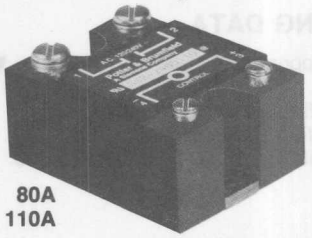
OUTLINE DIMENSIONS

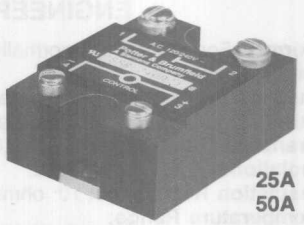


†80A and 110A models are 0.97 (24.64).
‡80A and 110A models are 1.10 (27.94).
All models ship with the appropriate screw terminals enclosed.

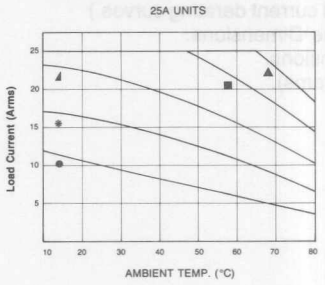
TERMINAL ACCESSORIES

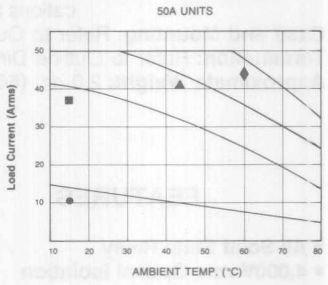
Optional terminals accept 6-32, 8-32 or 10-32 screws.
Box lug accepts a solid 14-6 AWG wire.
26A866
Dual .250" (6.35mm) quick connect.
26A945

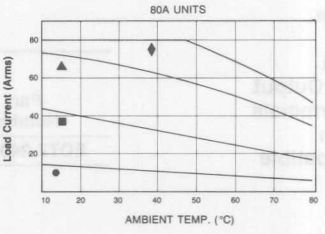


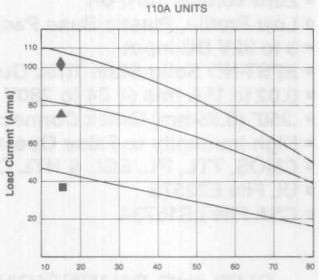


ELECTRICAL CHARACTERISTICS
STEADY STATE CURRENT VS. AMBIENT TEMPERATURE







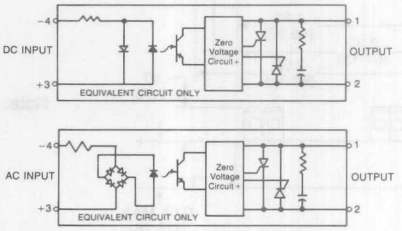


HEATSINK REQUIREMENTS

Code Symbol	Thermal Resistance	Typical Flat Surface Area Per Unit
●	None	None - Free Air
✱	5°C/W	6.25 in² (2.5" x 2.5")
◢	3°C/W	16 in² (4" x 4")
■	2°C/W	36 in² (6" x 6")
▲	1°C/W	144 in² (12" x 12")
◆	0.5°C/W	576 in² (24" x 24")

When mounting relays on a heatsink surface, use a thin coating of a thermal compound (Thermalloy "Thermalcote" or equivalent).

OPERATING DIAGRAMS



†Random turn-on Units have a random Turn-on circuit instead of Zero Voltage Circuit

SSR ORDERING INFORMATION

	Input			Output							
		§Typical mA		A rms		VAC		V peak	1 Cycle Surge	I^2t	Switching
Part Number	Voltage Range	@ Min. V	@ Max. V	Min.	Max.	Min.	Max.	Blocking	A peak	t = 8.3mSec	Type
*•SSR-240A25‡	90-280VAC	1.6	5	.05	25	24	280	±600	250	260	Zero
*•SSR-240A50‡	90-280VAC	1.6	5	.05	50	24	280	±600	650	1,750	Zero
*•SSR-240D25	3-32VDC	2	30	.05	25	24	280	±600	250	260	Zero
*•SSR-240D25R	3.5-26VDC	2.5	27	.05	25	24	280	±600	250	260	Random
*•SSR-240D50	3-32VDC	2	30	.05	50	24	280	±600	650	1,750	Zero
*•SSR-240D80	3-32VDC	2	30	.05	80	24	280	±600	1,250	6,000	Zero
SSR-240D110	3-32VDC	2	30	.05	110	24	280	±600	1,500	9,300	Zero

§Input current is approximately linear with respect to input voltage.
‡Input will operate on AC or DC voltage.

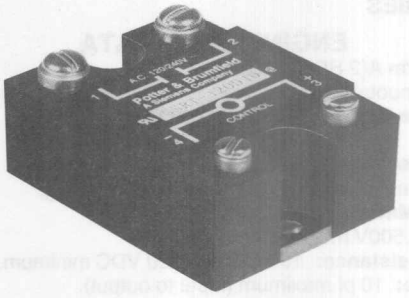
• Denotes UL
* Denotes CSA

Low-cost, triac output SSRT series solid state relays are offered in both 10 and 25 amp models.

SSRT SERIES

ENGINEERING DATA

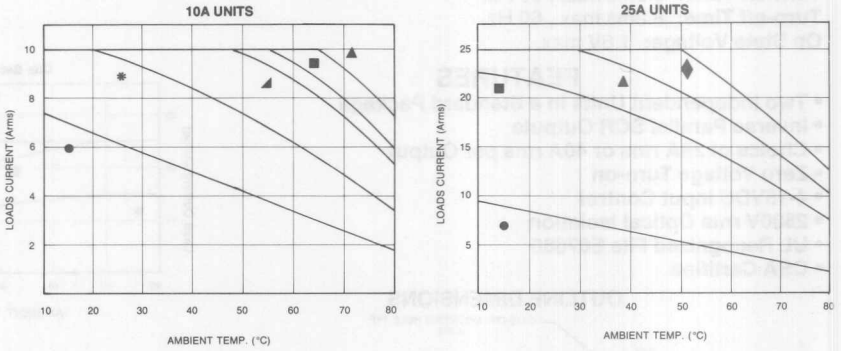
Form: 1 Form A (SPST-NO).
Duty: Continuous.
Temperature Range: Storage: −40°C to +120°C.
Operating: −30°C to +80°C.
Approximate Weight: 3.5 oz. (98g).
Case Material: Plastic, UL rated self-extinguishing.
Base Plate Material: Aluminum.
Isolation: 4,000V rms minimum; input-output.
2,500V rms minimum; input, output-base.
Isolation Resistance: 10^{10}ohms@ 500 VDC minimum.
Capacitance: 10 pf maximum (input to output).
Static dv/dt: 200V/μs minimum.
Off-state Leakage Current: 10mA max. @ max. VAC.
Load Power Factor Rating: 0.5 to 1.0.
Turn-on Time: DC input type; 8.3ms max., 60 Hz.
AC input type; 10ms max., 60Hz.
Turn-off Time: DC input type; 8.3ms max., 60 Hz.
AC input type; 40ms max., 60Hz.
On State Voltage: 1.6V max.



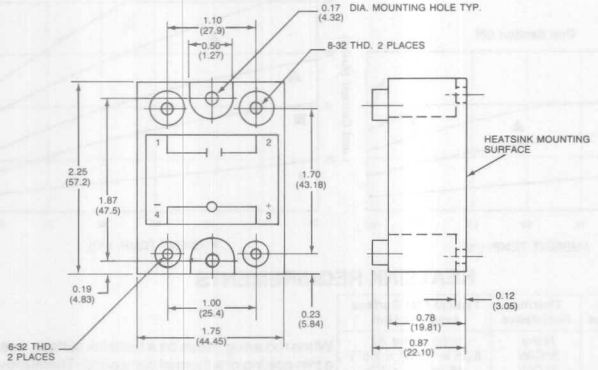
FEATURES

- **Standard "Hockey Puck" Package**
- **Low-cost Triac Output**
- **Zero Voltage Turn-on**
- **AC & DC Input Versions**
- **4000V rms Optical Isolation**
- **UL Recognized**
- **CSA Certified File LR32053**

ELECTRICAL CHARACTERISTICS
STEADY STATE CURRENT VS. AMBIENT TEMPERATURE



OUTLINE DIMENSIONS



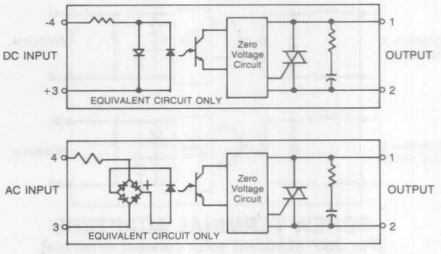
All models ship with the appropriate screw terminals enclosed.

HEATSINK REQUIREMENTS

Code Symbol	Thermal Resistance	Typical Flat Surface Area Per Unit
●	None	None - Free Air
✱	5°C/W	6.25 in² (2.5" x 2.5")
◢	3°C/W	16 in² (4" x 4")
■	2°C/W	36 in² (6" x 6")
▲	1°C/W	144 in² (12" x 12")
◆	0.5°C/W	576 in² (24" x 24")

When mounting relays on a heatsink surface, use a thin coating of a thermal compound (Thermalloy "Thermalcote" or equivalent).

OPERATING DIAGRAMS



TERMINAL ACCESSORIES

Optional terminals accept 6-32, 8-32 or 10-32 screws.
Box lug accepts a solid 14-6 AWG wire.
26A866
Dual .250" (6.35mm) quick connect.
26A945

SSRT ORDERING INFORMATION

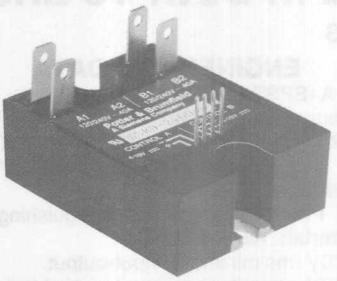
	Input			Output							
		§Typical mA		A rms		VAC		V peak	1 Cycle Surge	I^2t	Switching
Part Number	Voltage Range	@ Min. V	@ Max. V	Min.	Max.	Min.	Max.	Blocking	A peak	t = 8.3mSec	Type
*•SSRT-120A10‡	90-280VAC	1.6	5	.05	10	24	140	±400	100	42	Zero
*•SSRT-120A25‡	90-280VAC	1.6	5	.05	25	24	140	±400	250	260	Zero
*•SSRT-240A10‡	90-280VAC	1.6	5	.05	10	24	280	±600	100	42	Zero
*•SSRT-240A25‡	90-280VAC	1.6	5	.05	25	24	280	±600	250	260	Zero
*•SSRT-120D10	3-32VDC	2	30	.05	10	24	140	±400	100	42	Zero
*•SSRT-120D25	3-32VDC	2	30	.05	25	24	140	±400	250	260	Zero
*•SSRT-240D10	3-32VDC	2	30	.05	10	24	280	±600	100	42	Zero
*•SSRT-240D25	3-32VDC	2	30	.05	25	24	280	±600	250	260	Zero

§Input current is approximately linear with respect to input voltage.
‡Input will operate on AC or DC voltage.

• Denotes UL
* Denotes CSA

Get two independent solid state relays in one package with our new SSRD series.

SSRD SERIES



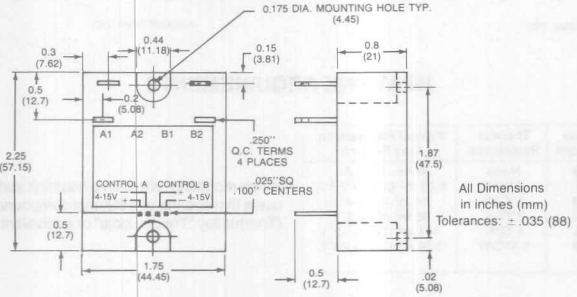
ENGINEERING DATA

Form: 2 Form A(2 SPST-NO).
Duty: Continuous.
Temperature Range: Storage: −40°C to +120°C.
Operating: −30°C to +80°C.
Approximate Weight: 3.5 oz. (98g).
Case Material: Plastic, UL rated self-extinguishing.
Base Plate Material: Aluminum.
Isolation: 2,500V rms minimum.
Isolation Resistance: 10^{10}ohms@ 500 VDC minimum.
Capacitance: 10 pf maximum (input to output).
Static dv/dt: 200V/μs minimum.
Off-state Leakage Current: 10mA max. @ max. VAC.
Load Power Factor Rating: 0.5 to 1.0.
Turn-on Time: 8.3ms max., 60 Hz.
Turn-off Time: 8.3ms max., 60 Hz.
On State Voltage: 1.6V max.

FEATURES

- Two Independent Units in a Standard Package
- Inverse Parallel SCR Outputs
- Choice of 25A rms or 40A rms per Output
- Zero Voltage Turn-on
- 4-15VDC Input Control
- 2500V rms Optical Isolation
- UL Recognized File E87680
- CSA Certified

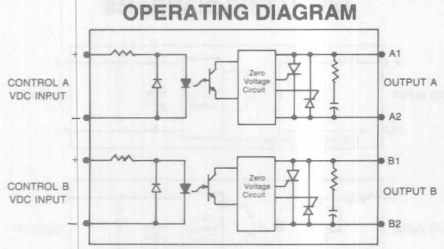
OUTLINE DIMENSIONS



All Dimensions in inches (mm) Tolerances: ± .035 (88)

All models ship with the appropriate screw terminals enclosed.

OPERATING DIAGRAM



SCREW TERMINAL ADAPTERS

[For .250" (6.35mm) quick connect terminals]

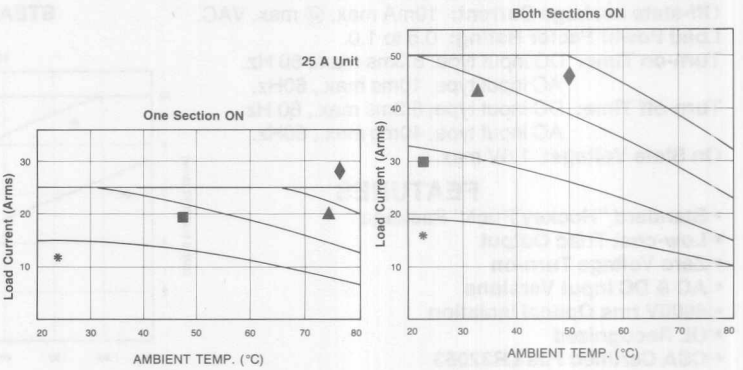
7AB1 STRAIGHT

7AB2 RIGHT ANGLE

Note: Adapters are offered in straight and right angle configurations. Terminals are designed to push on easily and lock in place when used with .250" (6.35mm) x .032" (0.8mm) NEMA or DIN standard male tab terminals. The screws are 6-32 binding head and terminals are brass.

ELECTRICAL CHARACTERISTICS
STEADY STATE CURRENT VS. AMBIENT TEMPERATURE

(Derived from the Thermal Derating Curves)

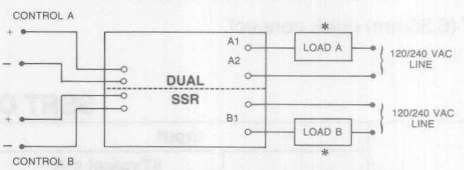


HEATSINK REQUIREMENTS

Code Symbol	Thermal Resistance	Typical Flat Surface Area Per Unit
●	None	None - Free Air
✱	5°C/W	6.25 in² (2.5" x 2.5")
◢	3°C/W	16 in² (4" x 4")
■	2°C/W	36 in² (6" x 6")
▲	1°C/W	144 in² (12" x 12")
◆	0.5°C/W	576 in² (24" x 24")
⌀	0.25°C/W	2304 in² (48" x 48")

When mounting relays on a heatsink surface, use a thin coating of a thermal compound (Thermalloy "Thermalcote" or equivalent).

TYPICAL HOOK UP DIAGRAM



*Loads can be placed in series with either terminal A1 or A2, B1 or B2.

SSRD ORDERING INFORMATION

	Input/Section			Output/Section							
		§Typical mA		A rms		VAC		V peak	1 Cycle Surge	I^2t	Switching
Part Number	Voltage Range	@ Min. V	@ Max. V	Min.	Max.	Min.	Max.	Blocking	A peak	t = 8.3mSec	Type
*•SSRD-240D25	4-15VDC	9	40	.05	25	24	280	±600	350	500	Zero
*•SSRD-240D40	4-15VDC	9	40	.05	40	24	280	±600	500	1,040	Zero

§Input current is approximately linear with respect to input voltage.

• Denotes UL
* Denotes CSA

Our new SSRQ series has four AC output solid state relays in a single package.

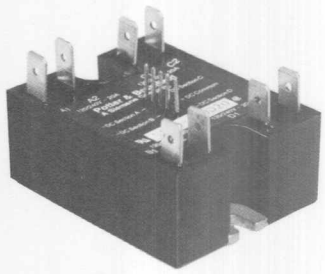
SSRQ SERIES

ENGINEERING DATA

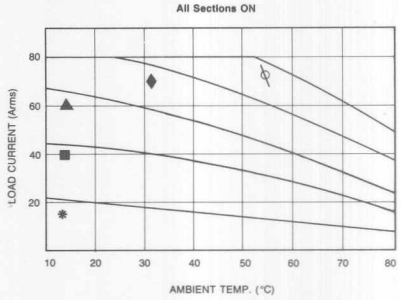
Form: 4 Form A(4 SPST-NO).
Duty: Continuous.
Temperature Range: Storage: −40°C to +120°C.
Operating: −30°C to +80°C.
Approximate Weight: 3.5 oz. (98g).
Case Material: Plastic, UL rated self-extinguishing.
Base Plate Material: Aluminum.
Isolation: 2,500V rms minimum.
Isolation Resistance: 10^{10}ohms@ 500 VDC minimum.
Capacitance: 10 pf maximum (input to output).
Static dv/dt: 200V/μs minimum.
Off-state Leakage Current: 10mA max. @ max. VAC.
Load Power Factor Rating: 0.5 to 1.0.
Turn-on Time: 8.3ms max., 60 Hz.
Turn-off Time: 8.3ms max., 60 Hz.
On State Voltage: 1.6V max.

FEATURES

- **Four Electrically Independent Solid State Relays in a Standard Package**
- **Triac Outputs Rated 20A rms each.**
- **Zero Voltage Turn-on**
- **4-15VDC Input Control**
- **2500V rms Optical Isolation**
- **UL Recognized File E87680**
- **CSA Pending**



ELECTRICAL CHARACTERISTICS
STEADY STATE CURRENT VS. AMBIENT TEMPERATURE



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◢	3°C/W	16 in² (4" x 4")
■	2°C/W	36 in² (6" x 6")
▲	1°C/W	144 in² (12" x 12")
◆	0.5°C/W	576 in² (24" x 24")
⊘	0.25°C/W	2304 in² (48" x 48")

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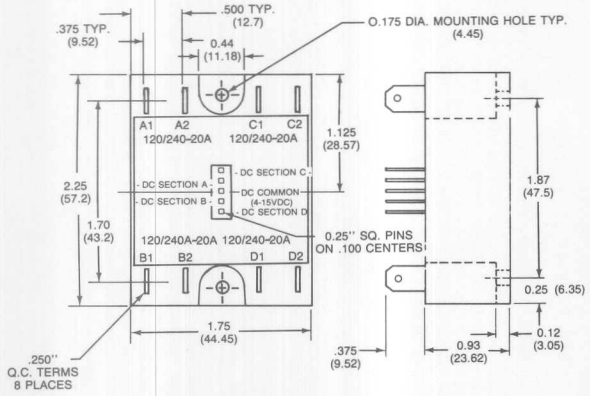
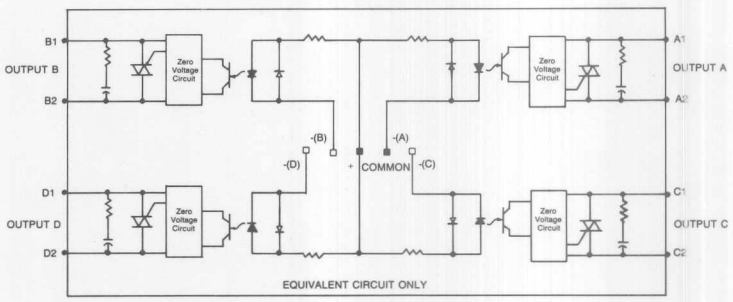
OUTLINE DIMENSIONS



OPERATING DIAGRAM



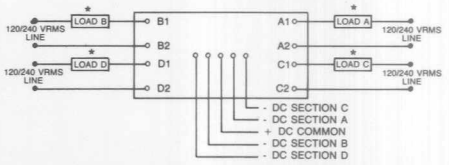
SCREW TERMINAL ADAPTERS
[For .250" (6.35mm) quick connect terminals]

7AB1
STRAIGHT

7AB2
RIGHT ANGLE

Note: Adapters are offered in straight and right angle configurations. Terminals are designed to push on easily and lock in place when used with .250" (6.35mm) x .032" (0.8mm) NEMA or DIN standard male tab terminals. The screws are 6-32 binding head and terminals are brass.

TYPICAL HOOK UP DIAGRAM



*Loads can be placed in series with either terminal A1 or A2, B1 or B2, C1 or C2, D1 or D2.

SSRQ ORDERING INFORMATION

	Input/Section			Output/Section							
		§Typical mA		A rms		VAC		V peak	1 Cycle Surge	I^2t	Switching
Part Number	Voltage Range	@ Min. V	@ Max. V	Min.	Max.	Min.	Max.	Blocking	A peak	t = 8.3mSec	Type
•SSRQ-240D20	4-15VDC	9	40	.05	20	24	280	±500	250	260	Zero

§Input current is approximately linear with respect to input voltage.

• Denotes UL